

# PATENT ABSTRACTS OF JAPAN

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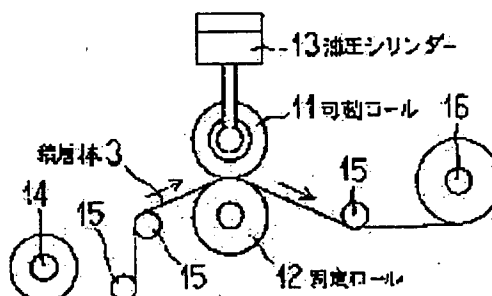
(21)Application number : 03-288063 (71)Applicant : SONY CORP  
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 SATO EINOSUKE  
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## (54) HOT-PRESS DEVICE FOR MANUFACTURING BATTERY ELECTRODE

### (57)Abstract:

**PURPOSE:** To provide a hot press for manufacturing battery electrode, which can improve a density of the electrode mix of both surfaces of a laminated body, which consists of a metal foil current collecting body and the electrode mix coated on both surfaces thereof, by heating and rolling the laminated body.

**CONSTITUTION:** In a hot press device for manufacturing battery electrode of a cylindrical battery, which is obtained by laminating the electrode mix on both surfaces of a belt-shape metal foil current collecting body, a laminated body 3, which consists of the metal foil current collecting body and the electrode mix coated on both surfaces thereof, is heated and rolled by a movable roll 11 and a fixed roll 12.



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CLAIMS

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[Claim(s)]

[Claim 1] a band-like metallic foil charge collector -- an electrode -- the equipment which uses a mixture for the manufacture of the cell electrode for cylindrical cells which comes to carry out a laminating to both sides -- it is -- a metallic foil charge collector and its both sides -- an electrode -- the hotpress equipment for cell electrode manufacture which carries out the heating roller of the layered product which applied the mixture.

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DETAILED DESCRIPTION

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[Detailed Description of the Invention]

[0001]

[Industrial Application] this invention -- the hotpress equipment for cell electrode manufacture for cylindrical cells -- being related -- further -- detailed -- a metallic foil charge collector and its both sides -- an electrode -- carrying out the heating roller of the layered product which applied the mixture -- a double-sided electrode -- it is related with the hotpress equipment for lithium ion rechargeable battery electrode manufacture which improves the consistency of a mixture.

[0002]

[Description of the Prior Art] a conventionally band-like metallic foil charge collector -- an electrode -- press processing was performed for the layered product which applied the mixture at the room temperature. a place -- press processing of the layered product in a room temperature -- an electrode -- association of the particle of a mixture was destroyed and there was a trouble that omission of a particle tend to take place.

[0003]

[Problem(s) to be Solved by the Invention] this invention is made in order to cancel such a conventional trouble -- having -- a metallic foil charge collector -- an electrode -- an electrode [ as opposed to / by carrying out the heating roller of the layered product which applied the mixture, are light press \*\*, have smooth front-face nature with a high consistency, and / a metallic foil charge collector moreover ] -- it is making into the technical problem to offer the hotpress equipment for cell electrode manufacture which obtains the layered product whose bond strength of a mixture improved.

[0004]

[Means for Solving the Problem] the hotpress equipment for cell electrode manufacture of this invention -- a band-like metallic foil charge collector -- an electrode -- the equipment which uses a mixture for the manufacture of the cell electrode for cylindrical cells which comes to carry out a laminating to both sides -- it is -- a metallic foil charge collector and its both sides -- an electrode -- the heating roller of the layered product which applied the mixture is carried out.

[0005]

[Function] thus, the thing to do -- an electrode -- a mixture -- omission of an inner particle cannot take place easily and a layered product with a high consistency is obtained.

[0006]

[Example] this invention -- the hotpress equipment for cell electrode manufacture for cylindrical cells -- being related -- further -- detailed -- a metallic foil charge collector and its both sides -- an electrode -- carrying out the heating roller of the layered product which applied the mixture -- a double-sided electrode -- it is related with the hotpress equipment for lithium ion rechargeable battery electrode manufacture which improves the consistency of a mixture.

[0007] Hereafter, the example of this invention is explained with reference to drawing 1 and drawing

2. Drawing 1 is the sectional view of the hotpress equipment for cell electrode manufacture of this invention, and drawing 2 is the important section expanded sectional view of drawing 1. this invention is shown in drawing 1 and drawing 2 -- as -- the band-like metallic foil charge collector 1 - an electrode -- the electrode which it is equipment which uses a mixture 2 for the manufacture of the cell electrode of a cylindrical cell which comes to carry out a laminating to both sides, and the metallic foil charge collector 1 is a foil which consists of copper or aluminum, and diffused particle 2a in binder 2b to both sides of this metallic foil charge collector 1 -- the heating roller of the layered product 3 which applied the mixture 2 is carried out. 11 is a movable roll and 12 is a fixed roll. the movable roll 12 is movable by the oil hydraulic cylinder 13 -- carrying out -- both sides -- an electrode -- the metal charge collector 1 which arranged the mixture 2 is pressed.

[0008] namely, this invention -- the metallic foil charge collector 1 and its both sides -- an electrode -- it is hotpress equipment for cell electrode manufacture for cylindrical cells which carries out the heating roller of the layered product 3 which applied the mixture 2. the metallic foil charge collector 1 and both sides -- an electrode -- the layered product 3 which applied the mixture 2 is wound around the winding frame 14, and the layered product 3 sent out from this winding frame 14 should be caught between the heated movable roll 11 and the fixed roll 12 -- it is rolled. A layered product 3 is led to a guide 15, and is rolled round by the rolling-up winding frame 16.

[0009] the temperature of the heated movable roll 11 and the fixed roll 12 -- an electrode -- by being set up near 80 which is the softening temperature of a mixture 2 - the 140 \*\*, and carrying out a heating roller at such temperature, it is light press \*\* and the layered product 3 with a high consistency is obtained.

[0010]

[Effect of the Invention] it explained above -- as -- the hotpress equipment for cell electrode manufacture of this invention -- a band-like metallic foil charge collector -- an electrode -- the equipment which uses a mixture for the manufacture of the cell electrode for cylindrical cells which comes to carry out a laminating to both sides -- it is -- a metallic foil charge collector and its both sides -- an electrode -- the heating roller of the layered product which applied the mixture is carried out. thus, the thing to do -- an electrode -- a mixture -- an electrode [ as opposed to / omission of an inner particle cannot take place easily, have smooth front-face nature with a high consistency by light press \*\*, and / a metallic foil charge collector moreover ] -- the layered product whose bond strength of a mixture improved can be obtained.

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TECHNICAL FIELD

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[Industrial Application] this invention -- the hotpress equipment for cell electrode manufacture for cylindrical cells -- being related -- further -- detailed -- a metallic foil charge collector and its both sides -- an electrode -- carrying out the heating roller of the layered product which applied the mixture -- a double-sided electrode -- it is related with the hotpress equipment for lithium ion rechargeable battery electrode manufacture which improves the consistency of a mixture.

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PRIOR ART

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**EFFECT OF THE INVENTION**

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[Effect of the Invention] it explained above -- as -- the hotpress equipment for cell electrode manufacture of this invention -- a band-like metallic foil charge collector -- an electrode -- the equipment which uses a mixture for the manufacture of the cell electrode for cylindrical cells which comes to carry out a laminating to both sides -- it is -- a metallic foil charge collector and its both sides -- an electrode -- the heating roller of the layered product which applied the mixture is carried out. thus, the thing to do -- an electrode -- a mixture -- an electrode [ as opposed to / omission of an inner particle cannot take place easily, have smooth front-face nature with a high consistency by light press \*\*, and / a metallic foil charge collector moreover ] -- the layered product whose bond strength of a mixture improved can be obtained.

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**TECHNICAL PROBLEM**

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MEANS

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[Means for Solving the Problem] the hotpress equipment for cell electrode manufacture of this invention -- a band-like metallic foil charge collector -- an electrode -- the equipment which uses a mixture for the manufacture of the cell electrode for cylindrical cells which comes to carry out a laminating to both sides -- it is -- a metallic foil charge collector and its both sides -- an electrode -- the heating roller of the layered product which applied the mixture is carried out.

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OPERATION

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EXAMPLE

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[0007] Hereafter, the example of this invention is explained with reference to drawing 1 and drawing 2. Drawing 1 is the sectional view of the hotpress equipment for cell electrode manufacture of this invention, and drawing 2 is the important section expanded sectional view of drawing 1. this invention is shown in drawing 1 and drawing 2 -- as -- the band-like metallic foil charge collector 1 - - an electrode -- the electrode which it is equipment which uses a mixture 2 for the manufacture of the cell electrode of a cylindrical cell which comes to carry out a laminating to both sides, and the metallic foil charge collector 1 is a foil which consists of copper or aluminum, and diffused particle 2a in binder 2b to both sides of this metallic foil charge collector 1 -- the heating roller of the layered product 3 which applied the mixture 2 is carried out. 11 is a movable roll and 12 is a fixed roll. the movable roll 12 is movable by the oil hydraulic cylinder 13 -- carrying out -- both sides -- an electrode -- the metal charge collector 1 which arranged the mixture 2 is pressed.

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DESCRIPTION OF DRAWINGS

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[Brief Description of the Drawings]

[Drawing 1] The sectional view of the hotpress equipment for cell electrode manufacture of this invention

[Drawing 2] The important section expanded sectional view of drawing 1

[Description of Notations]

1 Metallic Foil Charge Collector

2 Electrode -- Mixture

2a Particle

2b Binder

3 Layered Product

11 Movable Roll

12 Fixed Roll

13 Oil Hydraulic Cylinder

14 Sending-Area Winding Frame

15 Guide

16 Rolling-Up Side Winding Frame

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[Translation done.]